ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND

11908010003 - Madison County
Chemetco, Inc.
ILD048843800
Subpart F

On April 13, 14 & 16, 1998, a RCRA Groundwater Operation and Maintenance Inspection and Sampling Inspection was conducted at Chemetco Inc. in Hartford, Illinois by Gina Search, FOS-Collinsville. Present for the inspection were Heather Young with CSD and Brian Gibson, Environmental Specialist and Rick Whitney, Field Supervisor, both with Environmental Analysis, Inc.

The Chemetco facility is a secondary metal smelting facility. It was constructed in 1969 and began producing anode copper, cathode copper, crude lead-tin solder, zinc oxide and slag in 1970. Chemetco is an interim status RCRA facility going through "dirty closure" as a RCRA landfill. The groundwater monitoring program at the facility, as specified in the IEPA's April 19, 1991 Closure Plan approval letter meets the requirements of 35 Illinois Administrative Code, Part 724. They are conducting interim status sampling under Part 725, Subpart F.

Hazardous Wastes and Units

Chemetco has six RCRA waste management units. Closure and Post-Closure plans have been submitted for a zinc oxide pile and bunker (S03), zinc oxide lagoons (S04), a floor wash water impoundment (S04) and a zinc oxide discharge area (S04). The closure plan for the zinc oxide discharge area was approved with conditions, but the conditions were appealed by Chemetco.

The zinc oxide bunker is approximately 365 feet by 310 feet and has a capacity of 3,000,000 gallons. The former zinc oxide pile was located on the same site as the current bunker and was added to the bunker in 1984. The bunker contains zinc oxide, soils generated by the cleanup activities of the former pile, zinc oxide lagoons and a cooling canal, and a small amount of slag.

The zinc oxide lagoons, unlined earthen impoundments, encompassed an area approximately 150 ft by 220 ft by 15 ft deep. Until 1984 these units were used as settling units for slurry produced from the zinc oxide production system.

The cooling water canal, an unlined earthen ditch, measured 3600 feet long by 30 feet wide by 10 feet deep. The canal was used as a source of non-contact cooling water and was replaced with a cooling tower in 1985. Zinc oxide was allowed to spill into the south leg of the canal.

It is believed that operation of the floor wash water impoundment ceased in 1981. Sulfuric acid

from the copper refining process including spills, drips and rinses were flushed into the unlined slag/earthen impoundments. Hydrochloric and hydrobromic acid, copper, nickel, zinc, calcium, lead and cadmium were also present in the floor washings.

Material was removed from the zinc oxide lagoons and the former cooling canal in 1985, but a written plan was not submitted to the Agency for approval of this work. These units have not been closed or received certified clean closure status from the Agency. Chemetco has not shown these units were closed in accordance with all applicable closure requirements. Final approval of closure and post-closure plans was given by the Agency in a letter dated January 29, 1993. The closure and post-closure plan addressed three hazardous waste surface impoundments (D83), one hazardous waste pile (S03), one hazardous waste tank (T01) and one hazardous waste filter press (T04). Chemetco has not met the conditions of these plans.

Compliance History/Permit Status

Beginning in 1981, Chemetco installed groundwater monitoring wells up and downgradient from the Floor Wash Water Impoundment. A groundwater assessment plan was submitted in September 1986 for this unit. Chemetco reports they have sampled groundwater on a monthly schedule from January 1983 to March 1987 and limited sampling in 1987, 1988 and 1989. The monitoring requirements for April 1991 through May 1992 were not met, but quarterly data including groundwater elevation data and groundwater sampling data has been submitted since the second quarter of 1992. Sampling of the monitoring wells screened in the lower zone of the regional aquifer began in June 1992.

In response to detecting elevated metals concentrations in the perched aquifer, Chemetco began investigating the extent of the contamination. Arsenic, cadmium, copper, nickel, zinc and lead have been detected in the quarterly groundwater. Organic compounds had been previously detected. In early 1984 an acid recovery trench was installed south of the facility. This trench recovered contaminated groundwater. In mid-1984 the subsurface interceptor drainage system (SIDS) was installed. The SID system was designed to capture contaminated groundwater from the perched aquifer. The gravity flow SID system consists of six inch diameter PVE pipe and spans approximately 600 feet in length and varies in elevation from 412 feet at the ends and 410 feet at the center. It is not able to recover the groundwater downgradient of the system. Since October of 1992, the SID system is sampled and analyzed quarterly for arsenic, cadmium, chromium, copper, iron, nickel, lead, tin, zinc and pH.

In June 1988 a consent decree was filed which required Chemetco to include all "dirty closed" units in the plant's Post Closure Care Part B permit. Groundwater monitoring was to be included in the permit application. The zinc oxide lagoon, former acid pit and cooling water canals were all to be closed in accordance with RCRA requirements for surface impoundments.

Chemetco submitted a RCRA Part B Post-Closure Permit Application dated March 1993. The Groundwater Monitoring Program contained within this document is the plan currently in

use by the facility. Chemetco submitted a Revised Groundwater Monitoring Plan dated October 1997. This plan included the several improvements and upgrades made to Chemetco's groundwater monitoring system. Upon approval, Chemetco's Part B Permit Application will be revised to include the changes proposed to the Groundwater Monitoring Program.

The January 29, 1993 Closure and Post-Closure Plan Approval Letter conditions and modifications include quarterly monitoring requirements for the following parameters: lead, cadmium, zinc, arsenic, chromium, copper, tin, pH, specific conductance, TOC and TOX. There were also fourth quarter requirements for Appendix I metals and semi-volatiles for wells 31A, 28, 34, 44 and 47. The corrective action program condition includes tracking the rate of water removed from the SIDS system on a daily basis. Also Chemetco was to maintain an inward gradient at the property boundary line by pumping at least 165 gpm from the four pumping wells provided in the submitted groundwater model. At this time Chemetco has installed two pumping wells, Pumping Well B and Pumping Well D. These wells do not have pumps installed in them. They were to be used for gradient control as outlined in the post-closure plan approval letter. Pumping Well B was installed in 1989 and Pumping Well D was installed in 1992. This is an alleged violation of 35 IAC 703.121(a), 35 IAC 725.211, 35 IAC 725.213(b) and Section 21(f)(1) & (2) of the Environmental Protection Act.

Chemetco has proposed the designation of a groundwater management zone in the perched and regional aquifers. This designation has not been approved by the Agency.

Geology and Hydrogeology

Chemetco has submitted several quarters of groundwater monitoring data and a summary of geologic and hydrologic conditions at the facility; this report was dated January 1991. The following information was gathered from the Agency groundwater files as part of the review process required by this inspection. The geologic and hydrologic conditions described in Chemetco's submittal are consistent with existing ISGS geologic information.

The facility is located about one mile east of the confluence of the Missouri and Mississippi Rivers in a flood plain area locally known as the American Bottoms. The American Bottoms topography is relatively flat and includes about 175 square miles of Mississippi River floodplain, is approximately 30 miles long and ranges from about 3 to a maximum of 11 miles wide.

The American Bottoms is an area underlain by Pleistocene-age, unconsolidated valley fill deposits that range from 12 to 170 feet thick and average 120 feet in thickness. Generally the grain size sediments coarsens in the valley fill. A generalized cross section submitted by Chemetco depicts the area as underlain by top soil and slag fill which ranges in thickness from 0-11 feet. This underlain by clay and silt with interbedded lenses of sand and silt. The interbedded sands and silts are predominant in the southeast corner of the site. The sand lense does not extend to the northern and western boundaries of the facility. A second sand lense has been identified to the east of monitoring well 12. (See Attachment A for sand lense location) These

deposits range in thickness from 15 to 55 feet thick. Underlying the clay and silt is a sand layer containing some gravel and silt which ranges from 12 to 75 feet in thickness. A 50 foot sand and gravel layer underlies the finer sand unit. This is underlain by limestone bedrock.

Three zones are monitored by Chemetco, a shallow, perched aquifer and the American Bottoms aquifer which they have defined as consisting of an upper zone and a lower zone. The perched and regional aquifers beneath the facility meet the definition of a Class I aquifer under 35 Ill. Admin. Code, Part 620. Interbedded sand lenses in the recent alluvium allow for the presence of a perched water table at the site. The perched sand aquifer extends from 5 to 20 feet below grade with a maximum thickness of 15 feet and is bounded above and below by the clay and silty clay.

The fine sand layer and the underlying coarse sand and gravel layer comprise the regional American Bottoms aquifer. There is no boundary between these formations in the regional aquifer, but they are two distinct geologic units. The fine sand layer and coarse sand and gravel layer are one hydrostratigraphic unit and they have direct hydraulic connection with each other. This regional aquifer is generally greater than 90 feet thick and extends to bedrock. Local groundwater use in the area includes Chemetco's industrial use only well and 10 private wells located within one mile of the facility. The aquifer is a source of municipal, industrial and agricultural water within the area. The limestone bedrock aquifer below the American Bottoms aquifer is highly mineralized and has not been used for groundwater supplies.

Pumping and slug tests were performed in the upper and lower aquifers and in the silt and clay between these layers. The slug tests determined the average hydraulic conductivity in the perched unit to be 2.8×10^{-3} cm/sec, the upper regional hydraulic conductivity to be 1×10^{-2} cm^2/sec and the lower regional hydraulic conductivity to be 1×10^{-1} cm^2/sec.

During the period from April 15, 1997 to May 7, 1997, twenty-nine monitoring wells were abandoned and fifteen new or replacement monitoring wells were installed. After the completetion of the well installation and abandonment procedures Chemetco has a total of 30 monitoring wells. These wells are divided between a shallow perched aquifer, the upper zone and the lower zone of the regional aquifer. Two new background wells have been installed east of the plant. Not all 30 wells are used for water collection purposes, some are used strictly for collecting groundwater elevation data. (See Attachment B maps and monitoring well schedule). Samples are also collected from the SID system and are analyzed quarterly for arsenic, cadmium, chromium, copper, iron, nickel, lead, tin, zinc and pH.

Field Evaluation

The groundwater sampling activities were conducted under the interim-status sampling and analysis plan contained in Chemetco's Closure and Post-Closure Plan dated January 1991. This plan was reviewed as part of this inspection. During this second quarter round of sampling as well as the first, third and fourth, Chemetco's groundwater samples were analyzed for Arsenic,

Cadmium, Chromium, Copper, Lead, Nickel, Tin, Zinc, pH, Specific Conductance, TOC and TOX. During the fourth quarter additional parameters including Antimony, Barium, Beryllium, Cobalt, Mercury, Selenium, Silver, Vanadium, and Appendix IX Semi-Volatile Compounds are collected from the following monitoring wells: 28, 31A, 38R, 44R and 47R. The inorganic parameters are all analyzed for totals rather than dissolved constituents.

During this inspection the monitoring wells included in the assessment monitoring programs were checked for evidence of damage and integrity problems. All of the wells were labeled, but not all of them were sufficiently locked. All except two of the wells appeared to be in good condition. Monitor Well 27 had an outer casing hinge in needing of repair/replacement. The broken hinge does not allow the well to be locked. Monitor Well 28 had a surface seal in needing of repair/replacement. The condition of the seal compromises the integrity of the monitor well. This is an alleged violation of 35 IAC 725.191(c) and 35 IAC 620.505(a)(5)(D)(iii).

Chemetco provided all requested documents during the record review. The 7/14/97 and 10/6/97 entries in the field logbook indicated that several monitoring wells were not locked. The 7/14/97 entries reported that monitor well 28 had a cracked plug. The suggestion was made that the operating record reflects any repairs or replacement activitity performed on the wells. This inspection revealed that Monitor Well 27 and Monitor Well 28 had not been repaired during the quarters following the 7/14/97 round of sampling. This is an alleged violation of 35 IAC 725.115(c).

The Environmental Analysis staff samples the wells for this site and various sites across Missouri and Illinois. Their sampling protocol was observed during this inspection and is described in the following paragraphs. They began by measuring the water levels for all monitoring wells within a 24 hour period. All the water level elevations are taken prior to groundwater sample collection. Depth to water and total well depth measurements were taken with an electronic water level indicator. These readings were taken from the top of the inner well casing and recorded to the nearest 0.01 foot. The well caps were vented, therefore water level stabilization was not required prior to measurement. All data were recorded in a field log/well history. Headspace measurements were not taken upon uncapping of the wells. Historic sampling data demonstrate that this precautionary measure is not required for the wells at this site. A deionized water rinse was used to decon the water level indicator cable and probe in between well measurements.

Prior to the purging and measuring activities, a large plastic sheet was placed around the well head to provide a clean working surface. Purge amounts were calculated for each well. Teflon bailers were used to purge and sample the wells. Dedicated nylon ropes which are stored in numbered bags, were attached to the bailers and then lowered into the wells. The Environmental Analysis staff keeps the dedicated equipment at a storage facility. Three purge volumes are removed from each well before the samples are collected. Stabilization parameters; pH, specific conductivity, and temperature are collected from the first sample.

All purge fluids were contained in a 250-gallon plastic tank and then taken and put in Chemetco's process water. The bailers were decontaminated between wells. The decon procedure consisted of scrubbing with alconox solution, rinsing with tap water, rinsing with nitric acid, rinsing with deionized water and placing the bailers back in the plastic tubes to dry. The bailers provided by Environmental Analysis are not dedicated to Chemetco; they are used at numerous sites. Equipment blanks are collected at every tenth well. A clean bailer is filled with deionized water and then poured into sample bottles.

After the completion of well purging, the bailers are allowed to hang in the wells while well recharge occurs. The samples are collected within 24 hours after the wells are purged. Recharge time varied between wells; some wells were sampled within a few hours of purging, but others were allowed to recharge overnight.

The sample bottles were filled directly from the sampling device and in order of decreasing sensitivity to volatilization: TOX, TOC and metals. The sample bottles were filled to avoid overtopping and rinsing of the bottle. The filled sample bottles were placed in coolers packed with ice.

Chain-of-custody forms were prepared every day and taken with the samples to the laboratory by the Environmental Analysis staff. Environmental Analysis operates their own laboratory facilities and provides all the analytical data for Chemetco. The samplers are able to log the samples in themselves and retain the chain-of-custody until they are logged in.

The sampling personnel wore clean gloves while sampling and changed gloves after each well. Care was taken not to place sampling equipment on the ground. All sample bottles are prepared and preserved by the laboratory. The sampling personnel labels the bottles with the following information: well I.D., date, time and analyses required.

The scope of this inspection was solely to review the groundwater monitoring program. The following violations will be cited as a result of the findings during this Operation and Maintenance Groundwater Monitoring Inspection.

725.115(c)
725.191(c)
620.505(a)(5)(D)(iii)
Section 21(f)(1) & (2) of the Illinois Environmental Protection Act
703.121(a)
620.115
725.211
725.213(b)

COMMENTS
RCRA GROUNDWATER OPERATION AND MAINTENANCE INSPECTION:
TECHNICAL WORKSHEET

B.1. Three zones are being monitored. A shallow perched zone is present in a clay and silt layer. Below this lies the American Bottoms aquifer. Chemetco has described this aquifer as having an upper and lower zones.

B.3. Groundwater flow direction in the shallow "Perched" aquifer is from northwest to southeast. Chemetco maintains the flow direction in the Upper Regional Aquifer is influenced by Chemetco's on-site water wells. Groundwater flow direction in the Lower Regional Aquifer is from the east to west toward the Mississippi River.

C.g. During this inspection, it was recommended that a log of maintenance activities and completion dates be kept.

D.2. During a review of the operating record, this writer noted that during the well surveys the consultants had reported that several monitoring wells were not locked. These well are flush mounted wells that are not fitted with locks. The cover of each flush well has to be removed with a special took, so they are not readily accessible.

D.6. During the inspection, it was noted that two wells needed immediate attention. One well needed the outer casing lid replaced, it had broken off the hinge. Another well had a surface seal in need of replacement.

F.2. Sampling did not proceed form upgradient to downgradient nor was it from the least contaminated to the most contaminated.

F.2.b. Samplers stated that current data does not reflect organic vapors are present in the wells.

F.5.1 Wells are allowed to recharge for a couple of hours before the samples are collected.

F.5.v. Equipment blanks are collected at the rate of 1 every 10 wells.

COMMENTS
RCRA INTERIM STATUS GROUNDWATER MONITORING REGULATORY CHECKLIST

725.191(a) In May 1997, new upgradient wells were installed. Monitoring well 51 is screened in the upper regional aquifer and Monitoring well 52 is screened in the lower regional aquifer. Chemetco is still in the process of collecting enough data to establish background quality.

725.193(c) & 725.193(d)(1) Chemetco's quarterly reports and annual reports provide lists of the parameters that exceed the 35 IAC, Part 620 Groundwater Quality Standards-Class I.

725.193(d)(2) & 725.193(d)(5) During the 1983 groundwater monitoring activities, elevated metal concentrations were detected in the isolated, perched aquifer. Chemetco submitted a groundwater assessment plan report dated June 1986.

725.193(d)(7) Chemetco began groundwater sampling in 1983, but they failed to sample during a period lasting from April 19, 1991 through May 1992. This alleged violation of the regulations was cited against Chemetco.

725.192(b) See 725.191(a) Constituents include Appendix IX metals and semi-volatiles.

725.192(c) Twenty-three quarters of monitoring data collected during 1992 through 1997 were used to conduct a linear trend analysis. The new wells, installed May 1997, did not have enough available data to conduct the statistical analysis at this time.

725.192(b)(c)(d)(e), 725.193(b), 725.193(c), 725.193(d)(1), 725.194(a)(1) & 725.194(a)(2) Chemetco is in the assessment monitoring. Contaminants has been detected and they are monitoring at the point of compliance. During prior inspections alleged violations of these regulations were cited against Chemetco.

725.194(b)(2) The Annual RCRA Groundwater report is submitted as a stand-alone document. The data was submitted separately from the annual hazardous waste report.

725.115(d) During this inspection, the suggestion was made that the inspection log should include the date and type of repairs done on the wells.

725.116(a) Facility personnel do not perform any of the sampling activities required by the groundwater monitoring program. Consultants with Environmental Analysis, Inc. do this work.

703.121(a) & (b) Chemetco has not met the conditions outlined in the January 29, 1993 Closure and Post-Closure Letter.

703.154 Not reviewed during this inspection due to prior alleged violations.

703.155(a) & (b) Not reviewed during this inspection due to prior alleged violations.

703.181 & 703.182 Not reviewed during this inspection due to prior alleged violations.

703.185 A Revised Groundwater Monitoring Plan dated October 1997 is currently under review.

048 843 809

M E M O R A N D U M

DATE: August 26, 1988

TO: LPC - Division File

FROM: Chuck Reeter - DLPC - Collinsville

Chuck Reeter

SUBJECT: 1198010003 - Madison County
Hartford/Chemetco
ILD048843809
Subpart F Inspection

An annual Subpart F groundwater monitoring inspection (CME) was conducted on August 19, 1988 at the Chemetco, Inc. facility in Hartford. I was met and accompanied by Michelle Reznack, Environmental Coordinator for Chemetco, during the inspection. Initially, we discussed the status of the facility with respect to the groundwater monitoring program that was submitted as a requirement for closure of the regulated units. Michelle said that Chemetco's consultants, ERT, Inc. of Boston, were working on the revisions and responding to the deficiencies in the closure denial letter of August 4, 1988. The CME inspection checklist was discussed and completed in draft form, as much as could be done. At the time of the inspection, no Agency approved groundwater monitoring program had been implemented. Also, the facility has suspended their sampling program until they have an approved groundwater program. Consequently, much of the CME worksheet could not be completed. It is recommended that another CME inspection be conducted after Chemetco receives an approved groundwater program and sampling plan from the Agency. This will most likely occur sometime within the next fiscal year.

After the office discussions, we toured the site and observed the groundwater wells, regulated units, and SIDS system for collecting contaminated groundwater. Well #5 was discovered as having a broken casing. Photographs were taken during the field inspection.

At the time of the inspection, no Agency approved groundwater monitoring or sampling program has been implemented for the site. Previously observed apparent violations 725.190 through 725.194 will continue until resolved.

Following are the comments from the inspection report.

Appendix A-1

2. The previously implemented groundwater program at the facility was not Agency or RCRA approved for compliance with Interim Status Standards. A new groundwater program was submitted on May 6, 1988 as a condition of RCRA closure for the regulated units at the facility subject to groundwater monitoring, floor wash impoundments, zinc oxide pits, and cooling water canals. A number of deficiencies were identified after the review was completed and were indicated in the August 4, 1988 closure denial letter from the Agency.

At the time of the annual inspection, no Agency approved groundwater monitoring program existed for the site. Until an approved groundwater program has been implemented, the previously observed apparent violations will continue.

3. The apparent upgradient wells on-site may be affected by facility operations. Also, a newer well (#21) was installed and located off-site in order to establish background water quality conditions. However, the well is located approximately 1500 feet from the regulated units and recently a major road construction project has bisected the distance. In addition, the Agency has not yet received documentation supporting the locations of any upgradient groundwater wells on or off-site; i.e., groundwater elevations or contours for the upgradient locations, flow directions, or sampling results indicating representative background conditions.

4.&5. Downgradient wells are apparently in place for the floor wash impoundment. Additional downgradient wells are needed for the minimum required at the zinc oxide pit and cooling water canals. Documentation submitted (well logs) have indicated that some of the downgradient wells may not meet the Agency specifications for well construction.

6. Complete groundwater monitoring information for some of the wells at the site is not available.

7. Upon review of the well logs submitted, a number of deficiencies were noted. Refer to the well logs for specific detail. Many of the wells were not installed per the USEPA groundwater monitoring guidance manual (TEGD), available to the facility. Some deficiencies identified were:
   - natural cave-in along the bore hole and along the casing
   - natural clay used as a sealer material
   - natural soil used as a backfill along casing
   - filled sand and pea gravel used along the casing above the screens
   - well development was not documented
   - some wells have no seals, no bentonite, no slurry, and no concrete
   - elevations are reported differently from well logs to tables
   - variable screen lengths for wells monitoring same levels of the aquifer

8.&9. A sampling and analysis plan existed at the facility. It apparently has been followed according to a previously established routine. However, the plan was not approved according to RCRA guidelines. The proposed sampling in the new closure plan was found to be deficient.

10. At the time of the inspection, a groundwater quality assessment program had been outlined. However, it does not describe a site specific assessment program to determine the rate and extent of contamination that may be originating from the regulated units.

11.&13. RCRA monitoring records according to 725.192 and 725.193 do not exist. Annual reports of the non RCRA sampling data have not been received either.

Appendix A-2

1.&2. No official statistical comparisons have been made or submitted to the IEPA.

4. It is known that the Chemetco facility is affecting the groundwater quality, through the submission of the monthly reports and by their own identification in the Part B permit application, which addresses groundwater contamination and the recovery system at the facility.

Appendix A-CME Worksheet

I.B.3. Well boring logs, grain size analyses, hydraulic conductivity tables, water level information, and some water quality data tables were presented in the non-RCRA Groundwater Monitoring Plan, September 1986. Raw data for some of these characteristics was not presented.

I.B.8.a. The facility site map, which includes the groundwater monitoring wells, does not identify the cooling water canals or zinc oxide pits.

I.B.8.d. The three regulated units subject to groundwater monitoring requirements are the floor wash surface impoundment, zinc oxide pits and cooling water canals.

I.D.2 Clay and sand layers have not been found to be continous across the entire site, according to the boring logs and geologic cross sections. However, local and small areas of semi-confining layers may exist. Additional boring data from proposed new wells should be evaluated for consistency. Contamination has been detected at intermediate levels below the uppermost portion of the aquifer, which indicated that the clay lenses are not totally confining.

I.D.5. As highlighted from above, additional borings for wells that are proposed at the facility should be evaluated to further characterize the geologic conditions of the aquifer.

I.F.1.a. Well casing elevations and water levels were reported in tenths (0.1). Two wells have not yet been surveyed, #20 and #21.

I.F.2.a. Open areas at the plant have been covered with slag and concrete to collect storm water runoff, which could affect the infiltration rates into the groundwater.

I.F.4.a.&b. Refer to I.D.2. & I.D.5.

I.I. An assessment monitoring program does not exist for the facility. Refer to Appendix A-1, #10 and Appendix A-2.

I.J.1.c.&e. Refer to I.D.2.

I.J.2.a.&c. Refer to Appendix A-1, #3 and Appendix A, I,F.1.a.

I.J.3.a. Refer to I.D.2.

I.J.4.&5. Refer to Appendix A-1, #3,#4&5,#7.

I.6. Refer to Appendix A-1, #4&5, #10.

III., IV., V., VI. Since the facility does not have an Agency approved groundwater program, the sampling program has been discontinued. Once an approved groundwater program and sampling plan has been implemented at the facility, a return visit will be required to review the sample collection procedures, sample preservation and handling procedures, chain of custody, and laboratory QA/QC evaluation.

VIII.A. Refer to Appendix A-2.

VIII.B. Refer to Appendix A-1, #4&5.

VIII.C. Refer to Appendix A, III.

CVR:jlr/0212L

cc: LPC Collinsville
cc: Cindy Davis
cc: Bruce Carlson

M E M O R A N D U M

DATE: September 27, 1985

TO: Division File

Chuck Reeter

FROM: Chuck Reeter, DLPC, Collinsville

SUBJECT: LPC 1198010003 - Madison County - Hartford/Chemetco, Inc.
Subpart F - Groundwater Monitoring

On September 25, 1985, an attempt was made by Tom Powell and Chuck Reeter of the IEPA to conduct annual ISS and Subpart F inspections at the Chemetco, Inc. facility in Hartford.

These inspections were arranged through attorney negotiations between IEPA, Attorney General's Office, and Chemetco, Inc. during the month of September. It was agreed that no sampling would take place during the inspection.

We were met by Joel McKell, Plant Engineer for Chemetco, upon our arrival at the facility. We discussed activities, processes, and wastes at the facility for about an hour. Chemetco is attempting to submit a Part B Permit Application by the November 8 deadline for facilities that are required to implement Subpart F groundwater monitoring programs. The existing zinc oxide waste pile would be addressed and stored as a hazardous waste, since Chemetco probably could not recycle 75% of it within the next year. A concrete pad and sidewall were created for the zinc oxide waste pile. The circulating ditch for furnace cooling was not currently being used to dispose of wastewater. New groundwater wells (#12 thru 19) were installed in the last year. Other areas on the facility were being considered for drum and hazardous waste pile storage.

After these discussions, we asked to tour the facility. Joel said he wanted to contact the Chemetco attorney, Emmet Fitzgerald, about the request. After contacting him by phone, their decision was to deny access to visibly inspect the facility, as long as the IEPA enforcement action was still proceeding. It was explained to Joel that although everything at an inspection could be discussed in the office, it needed to be verified by the field inspectors, while touring the facility. All of the changes since the last inspections could not be verified, and all of the violations identified at the previous inspection on 6/14/84 by Kevin Pierard of the USEPA would remain in place. Joel said that he understood the risk by denying access; and that Chemetco was willing to accept the consequences.

Subpart F violations:
- 725.190
- 725.191
- 725.192
- 725.193
- 725.194

CVR:jlr/0038A

cc: DLPC - Collinsville
cc: Bruce Carlson
cc: Mark Haney

APPENDIX A-1

FACILITY INSPECTION FORM FOR COMPLIANCE WITH INTERIM STATUS STANDARDS COVERING GROUNDWATER MONITORING

General Information

USEPA Number: ILD048843809 IEPA Number: 1198010003

Major Facility: (YES) NO Notified As: G/TSD Regulated As: G/TSD

Facility Name: CHEMETCO, INC.

Street: ROUTE 3 & OLDENBERG ROAD / P.O. BOX 187 ALTON

City: HARTFORD State: ILLINOIS Zip Code: 62002

Phone: (618) 254-4381 County: MADISON

Facility Contact Official: JOEL MCKELL Branch/Organization: CHEMETCO, INC.

Title: PLANT ENGINEER

Region: 5 Date of Inspection: 09/25/85 Time: (From) 1:15 pm (To) 3:15 pm

Type of Inspection: (GWM) RR F/U ___/___/___ (Date of Initial Inspection)

Preparer Information:

Name: CHARLES REETER

Agency/Title: IEPA, EPS III, GWM COORDINATOR

Telephone: (618) 345-4606

Section	Class I	Class II
725.190, 725.191,	2	
725.192, 725.193,	2	
725.194	1	
TOTAL Class I's & II's	5	

	YES	NO	UNKNOWN	WAVIED
Type of facility: (check appropriately)				
a) surface impoundment	X			
b) landfill				
c) land treatment facility				
d) disposal waste pile*	X			
Groundwater Monitoring Program				
1. Was the groundwater monitoring program reviewed prior to site visit? if "NO",	X*			
a) Was the groundwater program reviewed at the facility prior to site inspection?				
2. Has a groundwater monitoring program (capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility) been implemented? 725.190(a)		X*		

*SEE MEMO REGARDING INSPECTION FOR FURTHUR DETAILS

*Listed separate from landfill for convenience of identification.

SEP 30 1985

IL 532-1344
LPC 195 4/85

Chemetco
FIRST IN PEOPLE – QUALITY – SERVICE
P.O. BOX 187 • ALTON, ILLINOIS 62002

June 24, 1987

Ms. Cindy S. Davis
Facilities Compliance Unit
Compliance Monitoring Section
Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Re: ILDO 48843809
Subpart F Groundwater Monitoring Program

Dear Ms. Davis:

Enclosed please find analytical results reflecting first quarter groundwater monitoring at the Chemetco facility. This monitoring was conducted in accordance with the Groundwater Monitoring Plan submitted to IEPA for approval September 8, 1986. To date Chemetco has received no reply regarding the submittal. Chemetco is, therefore, implementing the plan as proposed.

The attached report of findings is ordered as follows: 1. Introduction, 2. Summary of Monitoring Data, 3. Evaluation of Findings, and 4. Paramter Modification for Subsequent Monitoring Events. Reporting and notice of parameter modification are done according to and in compliance with the September 8 plan.

Should you have any questions regarding this report, please feel free to contact me at 618-254-4381.

Sincerely yours,

Cheng-Ping Chang

Cheng-Ping Chang
Environmental Coordinator

cc: Mark Haney, ERT
File

GROUNDWATER MONITORING REPORT
JUNE 21, 1987

CHEMETCO, INC.
HARTFORD, ILLINOIS

1. Introduction

This RCRA Subpart F groundwater monitoring report is being submitted in fulfillment of applicable regulatory requirements and is based on a September, 1986 document entitled Groundwater Monitoring Plan. The plan was previously submitted to Illinois EPA for review and approval; to date, however,Chemetco has not received comment on it. Therefore, it is being implemented as proposed.

Chemetco has had monitoring wells in place at the facility since 1981. However, monitoring was limited to indicators specific to operations at the facility, including pH, total dissolved solids, boron, chloride, nickel, zinc and copper. Other parameters including the other three contamination indicators, pesticides, radionucleides, etc. were not routinely monitored for.

Although the previous monitoring program was limited to parameters expected to show changes in groundwater quality resulting from Chemetco operations it was, nevertheless, successful. Operation of a now closed unit, the floor wash water impoundment, was determined to have affected nearby groundwater. Responding to those findings Chemetco initiated remedial action by installing the subsurface interceptor drainage system (SIDS). Groundwater withdrawal was begun and contaminated groundwater treated. In addition to fulfilling applicable regulatory requirements the present monitoring program will serve to track and confirm the success of the SIDS.

2. Summary of Monitoring Data

Analytical results of first quarter monitoring activities, conducted May 6 and 7, 1987, are summarized in Tables 1-3. Table 1 contains those parameters for which interim primary drinking water standards are established. Table 2 lists the six water quality parameters, chloride, iron manganese, sodium, sulfates and phenols, plus additional parameters which Chemetco believes are capable of detecting changes in water quality potentially due to historical operations at the facility. Table 3 shows data on the four groundwater contamination indicators, pH, specific conductance, total organic carbon (TOC) and total organic halogen (TOX). Additionally, Table 1 lists the 80% calculated value of the 20 interim primary drinking water standards. As the September, 1986 Groundwater Monitoring Plan indicates, continued monitoring for those parameters with values falling below the 80% level will be discontinued (see Section 4 for details). Copies of the original analytical information may be found in Appendix A.

3. Evaluation of Findings

First quarter groundwater monitoring results generally confirm those of previous monitoring activities. Only wells MW-2B and MW-8A indicated levels of constituents over interim primary drinking water standards. In addition, the levels of metals in groundwater (comparing results from well 2B to wells 11 and 11A) which may be attributable to Chemetco's activities (e.g., copper) indicate that the SIDS is exerting a significant effect in controlling contaminant migration. As expected based on Chemetco's operating practices, pesticides, radionucleides and coliform were not found in significant quantities. In fact, in all wells tested pesticides and coliform were below detectable limits (BDL). TOC and TOX levels were both low, including those wells which showed relatively higher values for other parameters such as copper or sodium. Relatively low levels of both TOC and TOX even in groundwater suspected of being affected by previous site activities (i.e., the floor wash water impoundment) further support the position that organics need not be a consideration in future monitoring activities. Chemetco will, nevertheless, continue quarterly monitoring for TOC and TOX to fulfill regulatory requirements as well as establish baseline data.

4. Parameter Modification for Subsequent Monitoring Events

As stated in the September 8 Groundwater Monitoring Plan, Chemetco will conduct additional monitoring activities based on the results of the first quarter's efforts. Section 3.1 of the plan describes the interim primary drinking water standard eighty per cent approach. Eighty per cent values have been calculated for all Appendix III parameters and are shown in Table 1. Data for each parameter at each well sampled are also included in Table 1. As can be seen, the majority of data points fall below both the IPDWS and the eighty per cent calculated value. A significant number of these values are BDL, as well. Except for well 2 (MW-2) parameters proposed for the remaining three quarters of the first year's monitoring are listed in Table 4. As the footnote to Table 4 explains, the final parameter list for MW-2 will be established for the third quarter, assuming a sample can be collected second quarter. If MW-2 is again dry second quarter, sampling will be attempted each succeeding quarter until a sample can be collected, and four quarters' worth of data established.

TABLE 1 INTERIM PRIMARY DRINKING WATER STANDARDS (APPENDIX III)

	Max. Level mg/l	WELL NUMBERS (MW) 21	1A		2	2B	3A	8	8A	11	11A	19	20	80% IPDWS mg/l
As	.05	<.005	<.005			5.15	<.005	.034	.021	<.005	<.005	<.005	.020	.04
Ba	1.0	.335	.133			.019	.191	.068	.112	.057	.485	.190	.635	.8
Cd	.01	<.005	<.005			.849	<.005	<.005	.367	<.005	<.005	<.005	<.005	.008
Cr	.05	.010	.030		W	.757	.054	.026	.052	.006	.005	.009	.017	.04
Fe	1.4-2.4	.187	.250		E	16.6	.600	.270	2.19	.257	.250	.200	.290	1.1-1.9
Pb	.05	<.005	<.005		L	.29	<.005	<.005	<.005	<.005	<.005	<.005	.007	.04
Hg	.002	<.0002	<.0002		L	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	.0016
N	10	7.74	.27			<.01	<.01	<.01	<.01	.55	.26	4.53	.49	8
Se	.01	<.005	<.005			.093	<.005	<.005	.094	<.005	<.005	<.005	<.005	.008
Ag	.05	.008	<.005		D	.050	.022	.011	.026	<.005	.005	.005	<.005	.04
Endrin	.0002	<.0002	<.0002		R	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	.00016
Lindane	.004	<.004	<.004		Y	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	.0032
Methoxychlor	.1	<.1	<.1			<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	.08
Toxaphene	.005	<.005	<.005			<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	.004
2,4-D	.1	<.1	<.1			<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	.08
2,4,5-TP Silver	.01	<.01	<.01			<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	.008
Radium (total)(pCi/1	5	<1	<1			<1	<1	<1	<1	<1	<1	<1	<1	4
Gross Alpha (pCi/1)	15	<2	5±4			<2	<2	<2	<2	5±4	<2	<2	<2	12
Gross Beta (millirem)	4	<3	9±6			13±11	<3	7±6	14±6	15±6	<3	<3	<3	3.2
Coliform (total)#/100mil	1	<1	<1			<1	<1	<1	<1	<1	<1	<1	<1	

TABLE 2 WATER QUALITY INDICATORS

WELL NUMBERS (MW)

	21	1A	2	2B	3A	8	8A	11	11A	19	20
[redacted]	.020	.681		1.67	1.85	2.57	3.55	.199	.017	.075	.044
	16.1	186	W	1309	1838	750	2841	60.6	5.23	32.4	7.41
	.006	.030	E	2200	.060	.018	.482	.045	.028	.038	1.79
Fe	<.05	.06	L	470	.05	.15	<.05	.06	.19	<.05	.57
Mn	<.005	2.49	L	56.3	.124	.853	6.42	.426	.356	.025	.322
Na	12.3	46.7		2075	1442	944	2926	152	12.3	12.7	14.7
Ni	<.05	<.06	D	1110	<.05	<.05	2.48	<.05	<.05	<.05	1.06
Phenols	<.005	<.005	R	.038	<.005	<.005	.010	<.005	<.005	.008	<.005
Sulfates	38	290	Y	13700	2450	1438	3440	830	16.8	101	20
Diss.Solids	424	1219		22480	7078	7900	10546	2148	318	690	387
Zn	.010	.043		39.9	.031	.156	4.44	.041	.025	.019	.234

[redacted]

TABLE 3 CONTAMINATION INDICATORS

WELL NUMBERS (MW)

	21	1A	2	2B	3A	8	8A	11	11A	19	20
	7.05	6.90		3.20	7.05	7.10	6.60	6.20	5.70	6.40	6.80
	7.05										
	7.20		W								
	7.20		E								
SC	500	1627	L	16981	9036	5084	12209	1940	288	612	570
	510		L								
	510										
	510										
TOC	1.73	2.01		10.6	5.95	3.33	5.94	3.68	2.53	2.49	3.13
	1.29		D								
	1.33		R								
	1.33		Y								
TOX	<.01	<.01		.24	.13	<.01	.10	.02	<.01	.02	<.01
	<.01										
	.02										
	<.01										

TABLE 4 PROPOSED PARAMETERS FOR 2ND QUARTER THRU 4TH QUARTER

	WELL NUMBERS										
	21	1A	2	2B	3A	8	8A	11	11A	19	20
As			X	X							
Cd			X	X			X				
Cr			X	X	X		X				
Fl			X	X			X				
Pb			X	X							
Se			X	X			X				
Ag			X	X							
B	X	X	X	X	X	X	X	X	X	X	X
Cl	X	X	X	X	X	X	X	X	X	X	X
Cu	X	X	X	X	X	X	X	X	X	X	X
Fe	X	X	X	X	X	X	X	X	X	X	X
Mn	X	X	X	X	X	X	X	X	X	X	X
Na	X	X	X	X	X	X	X	X	X	X	X
Ni	X	X	X	X	X	X	X	X	X	X	X
Phenola	X	X	X	X	X	X	X	X	X	X	X
Sulfates	X	X	X	X	X	X	X	X	X	X	X
Diss. Solids	X	X	X	X	X	X	X	X	X	X	X
Zn	X	X	X	X	X	X	X	X	X	X	X
pH	X2	X	X	X	X	X	X	X	X	X	X
SC	X2	X	X	X	X	X	X	X	X	X	X
TOC	X2	X	X	X	X	X	X	X	X	X	X
TOX	X2	X	X	X	X	X	X	X	X	X	X

1 Sampling will again be attempted on MW2. If a sample is obtained it will be analysized for the full first quarter list, and modifications proposed 3rd quarter.

2 Four replicates each

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

May 11, 1987

Mr. Chang
Chemetco
Post Office Box 187
Alton, IL 62002

Dear Mr. Chang:

Enclosed you will find the pH values and the Specific Conductance values for the groundwater monitoring wells sampled on May 6 & 7, 1987.

If you have any questions, please call me at (314) 921-4488.

Respectfully Submitted,

Chris Segafredo

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

Mr. Chang
Chemetco
Post Office Box 187
Alton, IL 62002

CHEMETCO
MAY 6 & 7, 1987

WELL INDENT.	pH VALUE	pH BUFFER (7.00)	SPECIFIC CONDUCTANCE @ 25 C	SPECIFIC CONDUCTANCE STD. (1413)
Calibration 5/6		7.00		1408
MW #11	6.20		1940	
MW #11A	5.70		288	
MW #19	6.40		923	
MW #21 (1)	7.05		612	
(2)	7.05		601	
(3)	7.20		609	
(4)	7.20		602	
Calibration 5/7		7.00		1403
MW #1A	6.90		1627	
MW #2	NO WATER IN WELL			
MW #2B	3.20		16981	
MW #3A	7.05		9036	
MW #8	7.10		5084	
MW #8A	6.60		12209	
MW #20	6.80		570	

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

PAGE NO : 1
REPORT NO : 25583
DATE : 06/10/87
P.O. No. : 30089

MR. CHANG
CHEMETCO
POST OFFICE BOX 187
ALTON IL 62002

REPORT OF ANALYSIS

SUBJECT : Analysis of waste samples in accordance with SW-846: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods, 1982; where applicable.

LOG NUMBER	SAMPLE DESCRIPTION
803410	MON WELL SAMP 5/7/87
803411	MW#1A 5/7/87 1041
803412	MW#2B 5/7/87 1150
803413	MW#3A 5/7/87 1102
803414	MW#8 5/7/87 1124
803415	MW#8A 5/7/87 1135
803416	MW#20 5/7/87 1210

RESULTS OF ANALYSIS APPEAR ON FOLLOWING PAGES

RESPECTFULLY SUBMITTED
R. M. Ferris
R. M. FERRIS

Environmental Analysis, Inc.

3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25583
DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803410	MON WELL SAMP 5/7/87	Sampling Charges	18	man-hr
803411	MW#1A 5/7/87 1041	Silver	<0.005	mg Ag/
		Arsenic	<0.005	mg As/
		Boron	0.681	mg B/l
		Barium	0.133	mg Ba/
		Cadmium	<0.005	mg Cd/
		Chloride	186	mg Cl/
		Chromium	0.030	mg Cr/
		Copper	0.030	mg Cu/
		Fluoride (diss.)	0.250	mg F/l
		Iron	0.06	mg Fe/
		Mercury	<0.0002	mg Hg/
		Manganese	2.49	mg Mn/
		Sodium	46.7	mg Na/
		Nickel	<0.05	mg Ni/
		Nitrate Nitrogen	0.27	mg N/l
		Lead (GTF)	<0.005	mg Pb/
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/
		Sulfates	290	mg SO4
		Total Coliform	<1	#/100
		Dissolved Solids	1219	mg/l
		Total Organic Carbon	2.01	mg/l
		Total Org. Halogen	<0.01	mg/l
		Zinc	0.043	mg Zn/
803412	MW#2B 5/7/87 1150	Silver	0.050	mg Ag/
		Arsenic	5.15	mg As/
		Boron	1.67	mg B/l

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25583
DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803412	MW#2B 5/7/87 1150	Barium	0.019	mg Ba/l
		Cadmium	0.849	mg Cd/l
		Chloride	1309	mg Cl/l
		Chromium	0.737	mg Cr/l
		Copper	2200	mg Cu/l
		Fluoride (diss.)	16.6	mg F/l
		Iron	470	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	56.3	mg Mn/l
		Sodium	2075	mg Na/l
		Nickel	1110	mg Ni/l
		Nitrate Nitrogen	<0.01	mg N/l
		Lead (GTF)	0.29	mg Pb/l
		Pesticides	1*	
		Phenols	0.038	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	0.093	mg Se/l
		Sulfates	13700	mg SO4
		Total Coliform	<1	#/100 ml
		Dissolved Solids	22480	mg/l
		Total Organic Carbon	10.6	mg/l
		Total Org. Halogen	0.24	mg/l
		Zinc	39.9	mg Zn/l
803413	MW#3A 5/7/87 1102	Silver	0.022	mg Ag/l
		Arsenic	<0.005	mg As/l
		Boron	1.85	mg B/l
		Barium	0.191	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	1838	mg Cl/l
		Chromium	0.054	mg Cr/l
		Copper	0.060	mg Cu/l
		Fluoride (diss.)	0.600	mg F/l

Environmental Analysis, Inc.

3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25583

DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803413	MW#3A 5/7/87 1102	Iron	0.05	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	0.124	mg Mn/l
		Sodium	1442	mg Na/l
		Nickel	<0.05	mg Ni/l
		Nitrate Nitrogen	<0.01	mg N/l
		Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	2450	mg SO4/l
		Total Coliform	<1	#/100 ml
		Dissolved Solids	7078	mg/l
		Total Organic Carbon	5.95	mg/l
		Total Org. Halogen	0.13	mg/l
		Zinc	0.031	mg Zn/l
803414	MW#8 5/7/87 1124	Silver	0.011	mg Ag/l
		Arsenic	0.034	mg As/l
		Boron	2.57	mg B/l
		Barium	0.068	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	750	mg Cl/l
		Chromium	0.026	mg Cr/l
		Copper	0.018	mg Cu/l
		Fluoride (diss.)	0.270	mg F/l
		Iron	0.15	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	0.853	mg Mn/l
		Sodium	944	mg Na/l
		Nickel	<0.05	mg Ni/l
		Nitrate Nitrogen	<0.01	mg N/l

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25583
DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803414	MW#8 5/7/87 1124	Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	1438	mg SO4/
		Total Coliform	<1	#/100
		Dissolved Solids	7900	mg/l
		Total Organic Carbon	3.33	mg/l
		Total Org. Halogen	<0.01	mg/l
		Zinc	0.156	mg Zn/l
803415	MW#8A 5/7/87 1135	Silver	0.026	mg Ag/l
		Arsenic	0.021	mg As/l
		Boron	3.55	mg B/l
		Barium	0.112	mg Ba/l
		Cadmium	0.367	mg Cd/l
		Chloride	2841	mg Cl/l
		Chromium	0.052	mg Cr/l
		Copper	0.482	mg Cu/l
		Fluoride (diss.)	2.19	mg F/l
		Iron	<0.05	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	6.42	mg Mn/l
		Sodium	2926	mg Na/l
		Nickel	2.48	mg Ni/l
		Nitrate Nitrogen	<0.01	mg N/l
		Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	0.010	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25583
DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803415	MW#8A 5/7/87 1135	Selenium	0.094	mg Se/l
		Sulfates	3440	mg SO4/
		Total Coliform	<1	#/100 m
		Dissolved Solids	10546	mg/l
		Total Organic Carbon	5.94	mg/l
		Total Org. Halogen	0.10	mg/l
		Zinc	4.44	mg Zn/l
803416	MW#20 5/7/87 1210	Silver	<0.005	mg Ag/l
		Arsenic	0.020	mg As/l
		Boron	0.044	mg B/l
		Barium	0.635	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	7.41	mg Cl/l
		Chromium	0.017	mg Cr/l
		Copper	1.79	mg Cu/l
		Fluoride (diss.)	0.290	mg F/l
		Iron	0.57	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	0.322	mg Mn/l
		Sodium	14.7	mg Na/l
		Nickel	1.06	mg Ni/l
		Nitrate Nitrogen	0.49	mg N/l
		Lead (GTF)	0.007	mg Pb/l
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	20	mg SO4/
		Total Coliform	<1	#/100 m
		Dissolved Solids	387	mg/l
		Total Organic Carbon	3.13	mg/l
		Total Org. Halogen	<0.01	mg/l

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

PAGE NO : 7
REPORT NO : 25583
DATE : 06/10/87

CHEMETCO

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803416	MW#20 5/7/87 1210	Zinc	0.234	mg Zn/

*	Endrin	<0.0002	mg/l
	Lindane	<0.004	mg/l
	Methoxychlor	<0.1	mg/l
	Toxaphene	<0.005	mg/l
	2,4-D	<0.1	mg/l
	2,4,5-TP	<0.01	mg/l

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

PAGE NO : 1
REPORT NO : 25582
DATE : 06/10/87
P.O. No. : 30089

MR. CHANG
CHEMETCO
POST OFFICE BOX 187
ALTON IL 62002

REPORT OF ANALYSIS

SUBJECT : Analysis of waste samples in accordance with SW-846: Test Methods for Evaluating Solid Waste-Physical/Chemical Methods, 1982; where applicable.

LOG NUMBER	SAMPLE DESCRIPTION
803311	MON WELL SAMP 5/6/87
803312	MW#11 5/6/87 1000
803313	MW#11A 5/6/87
803314	MW#19 5/6/87
803315	MW#21 5/6/87
A803315	MW#21 5/6/87
B803315	MW#21 5/6/87
C803315	MW#21 5/6/87

RESULTS OF ANALYSIS APPEAR ON FOLLOWING PAGES

RESPECTFULLY SUBMITTED
R. M. Ferris
R. M. FERRIS

Environmental Analysis, Inc.

3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25582

DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803311	MON WELL SAMP 5/6/87	Sampling Charges	23	man-hrs
803312	MW#11 5/6/87 1000	Silver	<0.005	mg Ag/l
		Arsenic	<0.005	mg As/l
		Boron	0.199	mg B/l
		Barium	0.057	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	60.6	mg Cl/l
		Chromium	0.006	mg Cr/l
		Copper	0.045	mg Cu/l
		Fluoride (diss.)	0.257	mg F/l
		Iron	0.06	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	0.426	mg Mn/l
		Sodium	152	mg Na/l
		Nickel	<0.05	mg Ni/l
		Nitrate Nitrogen	0.55	mg N/l
		Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	830	mg SO4,
		Total Coliform	<1	#/100 m
		Dissolved Solids	2148	mg/l
		Total Organic Carbon	3.68	mg/l
		Total Org. Halogen	0.02	mg/l
		Zinc	0.041	mg Zn/l
803313	MW#11A 5/6/87	Silver	0.005	mg Ag/l
		Arsenic	<0.005	mg As/l
		Boron	0.017	mg B/l

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25582
DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803313	MW#11A 5/6/87	Barium	0.485	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	5.23	mg Cl/l
		Chromium	0.005	mg Cr/l
		Copper	0.028	mg Cu/l
		Fluoride (diss.)	0.250	mg F/l
		Iron	0.19	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	0.356	mg Mn/l
		Sodium	12.3	mg Na/l
		Nickel	<0.05	mg Ni/l
		Nitrate Nitrogen	0.26	mg N/l
		Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	16.8	mg SO4,
		Total Coliform	<1	#/100 m
		Dissolved Solids	318	mg/l
		Total Organic Carbon	2.53	mg/l
		Total Org. Halogen	<0.01	mg/l
		Zinc	0.025	mg Zn/l
803314	MW#19 5/6/87	Silver	0.005	mg Ag/l
		Arsenic	<0.005	mg As/l
		Boron	0.075	mg B/l
		Barium	0.190	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	32.4	mg Cl/l
		Chromium	0.009	mg Cr/l
		Copper	0.038	mg Cu/l
		Fluoride (diss.)	0.200	mg F/l

Environmental Analysis, Inc.

3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25582

DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803314	MW#19 5/6/87	Iron	<0.05	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	0.025	mg Mn/l
		Sodium	12.7	mg Na/l
		Nickel	<0.05	mg Ni/l
		Nitrate Nitrogen	4.53	mg N/l
		Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	0.008	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	101	mg SO4,
		Total Coliform	<1	#/100 r
		Dissolved Solids	690	mg/l
		Total Organic Carbon	2.49	mg/l
		Total Org. Halogen	0.02	mg/l
		Zinc	0.019	mg Zn/l
803315	MW#21 5/6/87	Silver	0.008	mg Ag/l
		Arsenic	<0.005	mg As/l
		Boron	0.020	mg B/l
		Barium	0.335	mg Ba/l
		Cadmium	<0.005	mg Cd/l
		Chloride	16.1	mg Cl/l
		Chromium	0.010	mg Cr/l
		Copper	0.006	mg Cu/l
		Fluoride (diss.)	0.187	mg F/l
		Iron	<0.05	mg Fe/l
		Mercury	<0.0002	mg Hg/l
		Manganese	<0.005	mg Mn/l
		Sodium	12.3	mg Na/l
		Nickel	<0.05	mg Ni/l
		Nitrate Nitrogen	7.74	mg N/l

Environmental Analysis, Inc.
3278 N. Lindbergh Blvd. · Florissant, MO 63033 · 314-921-4488

CHEMETCO

REPORT NO : 25582
DATE : 06/10/87

RESULTS OF ANALYSIS

LOG NUMBER	SAMPLE DESCRIPTION	TEST NAME	RESULTS OF ANALYSIS	UNITS OF EXPRESSION
803315	MW#21 5/6/87	Lead (GTF)	<0.005	mg Pb/l
		Pesticides	1*	
		Phenols	<0.005	mg/l
		Radium	SEE ATTACH	
		Alpha Radioactivity	SEE ATTACH	
		Beta Radioactivity	SEE ATTACH	
		Selenium	<0.005	mg Se/l
		Sulfates	38	mg SO4/
		Total Coliform	<1	#/100
		Dissolved Solids	424	mg/l
		Total Organic Carbon	1.73	mg/l
		Total Org. Halogen	<0.01	mg/l
		Zinc	0.010	mg Zn/l
A803315	MW#21 5/6/87	Total Organic Carbon	1.29	mg/l
		Total Org. Halogen	<0.01	mg/l
B803315	MW#21 5/6/87	Total Organic Carbon	1.33	mg/l
		Total Org. Halogen	0.02	mg/l
C803315	MW#21 5/6/87	Total Organic Carbon	1.33	mg/l
		Total Org. Halogen	<0.01	mg/l

*	Endrin	<0.0002	mg/l
	Lindane	<0.004	mg/l
	Methoxychlor	<0.1	mg/l
	Toxaphene	<0.005	mg/l
	2,4-D	<0.1	mg/l
	2,4,5-TP	<0.01	mg/l

M E M O R A N D U M

DATE: September 10, 1986

TO: Division File - DLPC

FROM: Chuck Reeter - DLPC - Collinsville Chuck Reeter

SUBJECT: 1198010003 - Madison County - Hartford/Chemetco
ILD048843809 - Subpart F GWM Inspection

RECEIVED
SEP 15 1986
IEPA-DLPC

On August 18, 1986, an annual Subpart F groundwater monitoring inspection was conducted at the Chemetco facility in Hartford. Those in attendance were Chuck Reeter of the Illinois EPA, Kevin Pierard of the USEPA, Joel McKell, Plant Engineer for Chemetco, Rick Coleman, Environmental Consultant for Chemetco, Emmett Fitzgerald and Robert Van Voorhees, Attorneys representing Chemetco.

After arrival at the facility, the agenda for the groundwater monitoring inspection was discussed among the attendees. It was expressed that the EPA inspectors intended to physically inspect and tour the site, while observing the groundwater monitoring wells and waste management areas. Additionally, it was also stated that we would discuss the processes and wastes generated at the facility, RCRA groundwater monitoring requirements, RCRA closure plan groundwater deficiencies, and items on the inspection checklist.

After initially outlining our agenda and purpose for the inspection, we walked around the facility, both on and off site, to observe the groundwater monitoring wells and waste management areas. A total of 25 wells were observed. Four of the wells were apparently newly installed within the last few months. The IEPA has only received 16 of the 25 well logs in the Part B Permit Application. All wells appeared on the surface to be in reasonably good condition, made of PVC material, with locking caps and protective standpipes for each one. The PVC cap joints on the wells appeared to have been glued-on, as was observed in most all cases. Additionally, a number of problems with the installation of those wells are identified in the inspection checklist (see attached comments). The groundwater recovery system was observed during the inspection. The system is an automatic sump, which collects contaminated groundwater in an underground trench and pipe south of the facility. The contaminated groundwater is pumped into an above ground tank located north of the "Polish" pits. Sodium Hydroxide is added to the liquid to neutralize the low acidity, then it is discharged and recycled into the lined "Polish" pits, which contain scrubber water. The unlined cooling water canals were also observed at the facility. Chemetco is currently trying to close out these canals, so they can be delisted as a waste unit. However, Joel McKell said that some of the bottom sediment samples, previously split with the IEPA prior to this inspection, were still considered to be EP-toxic, and might require further clean-up and dredging. The previously used and unlined surface impoundments near the "Polish" pits were observed to have been "closed" with fill material and leveled to ground surface grade. The zinc oxide generated as a process waste is stockpiled in large areas on the north side of the facility. Waste slag from the operations is stored on-site, which contain zinc, iron, nickel, silver, lead and tin residues. Concrete pads and

a stormwater collection drainage system have been constructed within the past year in an effort to control runoff from these waste piles. Prior to the concrete pads, the slag used to be stored on-site in unlined waste pits. Photographs were taken around the facility.

Discussions in the conference room continued after the physical inspection of the site. Joel McKell explained the processes at the plant and the by-products that were produced from their operations. The smelting operation produces primarily copper, with other secondary metals being extrapolated. Heavy metal slags, metal oxides, and contaminated scrubber water are generated as a waste of the process. Chemetco still maintains that no hazardous wastes are generated at the facility, which is contrary to IEPA soil and slag analyses and Chemetco's own groundwater results. Refer to Kevin Pierard's USEPA inspection of 6/14/84 for additional information on the facility operation, wastes generated and waste analyses at Chemetco.

Groundwater monitoring is being conducted at the site. However, no RCRA-ISS groundwater monitoring program has been implemented or existed at the time of inspection. Joel McKell was specifically asked if he wanted to use the Part B GWM plan as a RCRA-ISS Plan. He explicitly responded with a "no". The current Chemetco sampling being conducted at the time of the inspection is apparently for a few inorganic metals and pH values. The RCRA-ISS regulations and groundwater monitoring sampling and procedures were discussed at length with Chemetco representatives. Each regulation, 725.190 through 725.194, was covered as to what was expected in a RCRA groundwater monitoring program. Joel McKell handed the EPA inspectors a copy of a sampling and analysis plan for the facility. Initial review at the site indicated a good attempt had been made by Chemetco to characterize their sampling plan at the facility. However, the sampling frequency and parameters were not patterned after the required RCRA regulations. Joel said that he would have it revised to reflect "what we wanted", and would send it to me as soon as possible. In addition to discussing each groundwater monitoring regulation, a copy of a blank GWM inspection checklist was given to Joel, as a guide to what we wanted.

Other items discussed were the facts that the recently submitted closure plans to the IEPA did not contain any groundwater monitoring proposals. Since the facility is showing groundwater contamination, monitoring would be required in the closure plan. The IEPA asked to split groundwater samples in the future with Chemetco, to which Joel McKell responded favorably.

The inspection checklist for Chemetco was filled out as of the inspection date. It contains various comments (Appendix A-4) that are pertinent to the situation, and are attached for additional information. Chemetco recently, on September 9, 1986, submitted a new "Groundwater Monitoring Plan" to the Regional Office. With the newly developed and submitted RCRA groundwater monitoring plan and revised sampling and analysis plan, it is apparent that after review by IEPA and USEPA personnel, many of the previously charged Subpart F violations may be resolved. However, until the review is complete, all previously charged Subpart F groundwater monitoring violations are valid

and remain in effect. It is recommended that after the review, a follow-up or record review inspection be conducted at Chemetco to see if the groundwater monitoring plan is being implemented. At that time, appropriate violations could be resolved.

CVR:cas/0195L
Attachment

cc: Bruce Carlson - Enforcement
cc: Cindy Davis/Mark Haney
cc: DLPC - Collinsville
cc: Kevin Pierard, USEPA
cc: Chris Zeman, Asst. Attorney General